

REMARKS

Claims 1-19 and 38-51 are currently pending in this application. Applicant has withdrawn claims 20-37, without prejudice in response to a Restriction Requirement. Reconsideration is respectfully requested in light of the above claim amendments and the following remarks.

The Examiner rejected claim 14 under 35 U.S.C. 112, second paragraph as being indefinite. Applicant has amended claim 14 to place it in better condition for allowance and respectfully requests that this rejection be withdrawn.

Rejections Under 35 U.S.C. §102

Claims 1-8, 10, 38-41, 47-49 and 51 were rejected under 35 U.S.C §102(b) as being anticipated by U.S. Patent 5,391,192 to Lu et al. Claims 1-3, 10-11, 16-17, 19, 38-39, 43, 45 and 48-49 were rejected under 35 U.S.C. U.S.C §102(e) as being anticipated by U.S. Patent 6,731,985 to Poore et al. Applicant respectfully traverses these rejections.

Applicant's claimed invention, as recited in independent claims 1, 11, 38 and 44 is directed to a method for operating an implantable device comprised in part by comparing an integrated value of information related to cardiac depolarization and/or contraction with an evoked response parameter and a loss of capture parameter and implementing a fusion avoidance or loss of capture technique in response to the comparison. (Underlining added for emphasis only). Applicant respectfully submits that neither Lu et al. or Poore et al., alone or in combination, disclose or suggest the recited claim elements.

Rather, Lu et al. simply integrate the evoked QRS and compare it to a threshold to determine the capture threshold. (Lu et al., FIG. 3, col. 5, lines 37-54). Similarly, Poore et al. disclose an implantable system and method for automatic capture verification calibration. The system of Poore et al. includes a fusion avoidance technique which assesses the variability of the paced depolarization integral to determine whether a fusion beat has occurred. For example, the system of Poore et al. compares a coefficient of variation (i.e. the standard deviation divided by the average)

of the paced depolarization integral to a predefined maximum value. If the coefficient of variation is less than this predefined maximum value, then the paced depolarization integral data is considered acceptable.

If, however, the coefficient of variation is greater than the maximum value, the standard deviation (SD) of the paced depolarization integral is compared to a multiple, K, of the gain setting applied to the EGM signal by the ventricular sensing. If the standard deviation is less than 3 times the gain setting, then the paced depolarization integral data is still considered acceptable. If, however, the standard deviation is not less than 3 times the gain setting, fusion activity is suspected due to large variation in the data. Thus, the system of Poore et al. includes two variability tests which compare different measures of statistical variation of the paced depolarization integral with two thresholds to determine whether fusion has occurred.

However, neither Lu et al. or Poore et al., alone or in combination disclose or suggest comparing an integrated value to both an evoked response parameter and a loss of capture parameter and implementing a fusion avoidance or loss of capture technique if the comparison indicates that fusion or loss of capture occurred as recited in applicants' claimed invention. Accordingly, applicant respectfully submits that independent claims 1, 11, 38 and 44 are novel and unobvious over Lu et al. and Poore et al. and are therefore allowable. Applicant further submits that claims 2-10, claims 12-19 and claims 39-43 that depend from claims 1, 11 and 38 respectively, are allowable as are claims 1, 11 and 38 and for additional limitations recited therein.

Similarly, independent claims 45 and 49 are directed toward a cardiac stimulation device configured to determine an integral parameter and a loss of capture parameter. For example claim 49 recites a cardiac stimulation device comprised in part by a sensor that is operative to obtain information related to cardiac depolarization and/or cardiac contraction and a processor configured to determine a value from the information, the value comprising at least one of an integral value and a derivative value, and being configured to determine a fusion parameter and a loss of capture parameter from the information, the fusion parameter and the loss of capture parameter comprising statistics. Applicant respectfully submits that neither Lu et al. or Poore et al., alone or in combination, disclose or suggest the recited claim elements.

Rather as argued above, Lu et al. simply integrate the evoked QRS and compare it to a threshold to determine the capture threshold and Poore et al. use two variability tests, which compare different measures of statistical variation of the paced depolarization integral with two thresholds, to determine whether fusion has occurred. However, neither Lu et al. or Poore et al., alone or in combination disclose or suggest determining a fusion parameter and a loss of capture parameter from information related to cardiac depolarization or cardiac contraction as recited in independent claims 45 and 49.

Accordingly, applicant respectfully submits that independent claims 45 and 49 are novel and unobvious over Lu et al. and Poore et al. and are therefore allowable. Applicant further submits that claims 46-48 and claims 50-51 that depend from claims 45 and 49 respectively are allowable as are claims 45 and 49 and for additional limitations recited therein.

In light of the above claim amendments and remarks, it is respectfully submitted that the application is in condition for allowance, and an early notice of allowance is requested.

Respectfully submitted,

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Date



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